

## Factors Causing Wasting in Toddlers: A Literature Review

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### ABSTRACT:

**Background:** Wasting is one of the acute nutritional problems in toddlers, reflecting a weight that is too low for their height. This condition can increase the risk of mortality and long-term developmental disorders. The prevalence of wasting in Indonesia in 2022 reached 7.7%, with Bandar Lampung City at 8.4%, exceeding the provincial average.

**Objective:** This study aims to review research articles or journals on the factors causing wasting in toddlers.

**Methods:** The method used in this study is a literature review sourced from the Google Scholar and PubMed databases within the period of 2020-2025. Literature selection was conducted based on inclusion and exclusion criteria determined by the researcher. This review stage includes identifying the research problem, searching for literature, presenting data, and evaluating the data.

**Results:** Based on the literature review collected, the causes of wasting can be categorized into direct and indirect factors. Direct factors include inadequate food intake and infectious diseases like diarrhea. Indirect factors include exclusive breastfeeding, feeding practices, and access to healthcare services. The main underlying factors are poverty, family characteristics, food distribution patterns, the mother's education level, employment status, and household income level.

**Conclusion:** Wasting in young children is caused by a complex interaction between direct, indirect, and primary factors. Prevention and management efforts for wasting must be designed comprehensively, considering all contributing factors, especially improved nutritional intake, management of infectious diseases, increased maternal knowledge, and improvement of family socioeconomic conditions.

**KEYWORDS:** Acute malnutrition Causal factors, Malnutrition, Toddlers, Wasting.

### INTRODUCTION

Wasting is a form of malnutrition that reflects a child's weight being too low for their height, characterized by a weight-for-height z-score of less than -2 SD for wasting and a weight-for-height z-score of less than -3 SD for severe wasting (Ministry of Health of the Republic of Indonesia, 2020). Wasting in children results from rapid weight loss or an inability to gain weight (UNICEF, WHO, The World Bank, 2019). This condition puts toddlers at risk of long-term growth retardation, decreased immune system function, increased severity and susceptibility to infectious diseases, and an increased risk of death, especially for toddlers with severe wasting.

According to the WHO, the public health problem is classified as serious if it reaches 10.0% to 14.0% and critical if it exceeds 15% (JGMI, 2022). The incidence of wasting in Indonesia has shown a fluctuating trend recently, reaching 7.4% in 2019, 7.1% in 2021, and then rising to 7.7% in 2022 (Ministry of Health of the Republic of Indonesia, 2023). Although the incidence of wasting in Indonesia is decreasing, the wasting rate in Bandar Lampung City, according to the 2023 Indonesian Health Survey, stands at 8.4% and is feared to continue to increase annually (Ministry of Health of the Republic of Indonesia, 2023).

The impact of wasting is grave for children's health and development. Wasted children, especially those with malnutrition, have weakened immune systems, making them susceptible to infectious diseases such as diarrhea, colds, and pneumonia (Ali et al., 2022). Furthermore, wasted children are at risk of impaired physical growth, including stunted growth, which can develop into stunting (De Onis & Blössner, 1997). Inadequate nutrition in wasted children also poses risks to optimal brain development, learning ability, and future work productivity (Galler et al., 2021). Of all forms of childhood nutritional problems, wasting, particularly severe malnutrition, carries the highest risk of death, nearly 12 times higher than that of well-nourished children (Caulfield et al., 2004).

UNICEF (1998) asserts that both direct and indirect factors influence nutritional status. Direct factors affecting nutritional status include food intake and infectious diseases. Indirect factors affecting nutritional status include access to food, child and maternal care, and sanitation or health services. The main causes of nutritional problems are poverty, lack of knowledge and skills, and behavior. Previous research has shown that factors such as family income, maternal education, maternal occupation, exclusive breastfeeding, and infectious diseases are significantly associated with wasting (Muse et al., 2025; Luzingu et al., 2022; Rahut et al., 2024).

Based on this background, various complex and interacting factors contribute to wasting in toddlers. Therefore, researchers conducted a literature review to offer an in-depth analysis of the factors causing wasting in toddlers. Understanding these factors is expected to lead to appropriate policy recommendations and strategies for preventing and managing wasting in toddlers in Indonesia, particularly in Bandar Lampung City.

## METHODS

This research is a literature review. Data sources were obtained from Google Scholar and PubMed databases for the 2020-2025 period. The search terms used in Google Scholar were "causes of wasting," "risk factors for wasting in toddlers," and "determinants of wasting." The PubMed database used keywords such as "determinants of wasting," "risk factors for wasting in children," and "causes of acute malnutrition."

Literature selection was conducted by reviewing titles and abstracts and their relevance to the topic of "causes of wasting in toddlers." Articles were selected if they met the inclusion criteria: relevance to the topic of wasting, full-text availability, free of charge, using a quantitative cross-sectional or cohort design, and having toddlers aged 0-59 months as subjects. Exclusion criteria included literature reviews, articles related to the COVID-19 pandemic, studies with qualitative data, and articles with inaccessible content. The COVID-19 pandemic was excluded due to large-scale restrictions that limited patients' ability to provide feedback on healthcare services, as well as abnormal conditions in parenting patterns and food access. Qualitative research can yield different interpretations, particularly when using observation and interview methods, making it difficult to synthesize systematically.

The selection of research articles based on searches of Google Scholar and PubMed databases involved several stages: article identification, screening based on title and abstract, assessing eligibility based on full text, and finally, inclusion of articles meeting the criteria in the literature review. This selection process adhered to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines.

## RESULTS

The literature search yielded several articles relevant to the causes of wasting in toddlers. These articles were then analyzed to identify causal factors that consistently emerged across various studies. The following tables present the results of the literature review.

### Literature Review Based on Research Characteristics

Table 1. Literature review based on author, year, location, research design, and sample

No	First author, Year	Country	Research Design	Sample	Sampling Technique
1	Muse <i>et al.</i> , 2025	Ethiopia	Cross-sectional	384 children	Simple random sampling
2	Mulu <i>et al.</i> , 2021	Ethiopia	Cross-sectional	385 children	Systematic random sampling
3	Ali <i>et al.</i> , 2022	Ethiopia	Cross-sectional	754 children	Simple random sampling
4	Murarkar <i>et al.</i> , 2020	India	Cross-sectional	3.671 toddlers	Multistage sampling
5	Luzingu <i>et al.</i> , 2022	Democratic Republic of the Congo	Cross-sectional	3.911 children	Cluster sampling
6	Zhang <i>et al.</i> , 2022	China	Cross-sectional	2.547 children	Multistage sampling
7	Vijay <i>et al.</i> , 2024	Nepal	Cross-sectional	2.076 children	Secondary data analysis
8	Nguedjo <i>et al.</i> , 2024	Cameroon	Cross-sectional	200 children	Purposive sampling



No	First author, Year	Country	Research Design	Sample	Sampling Technique
9	Islam <i>et al.</i> , 2024	Pakistan	Cross-sectional	29.887 children	Multistage sampling
10	Rahut <i>et al.</i> , 2024	South Asia & East Asia	South Cross-sectional	Demographics Health Survey	Secondary data analysis

**Literature Review Based on Factors Causing Wasting**

**Table 2. Literature review based on factors that cause wasting in toddlers**

Causative factor	Authors (Year)	Results	p-value
<b>Direct Factors</b>			
Inadequate food intake	Zhang <i>et al.</i> (2022)	Insufficient energy and protein intake increases the risk of wasting	< 0,05
	Ali <i>et al.</i> (2022)	Snacking less than twice a day is associated with wasting	0,032
Infectious disease (diarrhea)	Murarkar <i>et al.</i> (2020)	Acute diarrhea is significantly associated with wasting	< 0,001
	Mulu <i>et al.</i> (2021)	Illness in the last 2 weeks increases the risk of wasting	0,018
	Islam <i>et al.</i> (2024)	The prevalence of diarrhea is negatively related to growth	< 0,01
<b>Indirect Factors</b>			
Exclusive breastfeeding	Murarkar <i>et al.</i> (2020)	Exclusive breastfeeding is significantly associated with preventing wasting	< 0,001
	Luzingu <i>et al.</i> (2022)	Combining breast milk with drinking water increases the risk of wasting	0,024
Parenting feeding patterns	Zhang <i>et al.</i> (2022)	The right timing of giving supplementary food reduces the risk of wasting	0,015
	Nguedjo <i>et al.</i> (2024)	Limited food consumption increases the risk	0,008
Access to health services	Muse <i>et al.</i> (2025)	Lack of access to toilets is associated with wasting	0,003
	Rahut <i>et al.</i> (2024)	Unsafe drinking water increases the risk of malnutrition	< 0,001
<b>Main Factors</b>			
Poverty/Family income	Muse <i>et al.</i> (2025)	Low family income is significantly associated with wasting	0,001
	Vijay <i>et al.</i> (2024)	Poor households	< 0,05
	Ali <i>et al.</i> (2022)	Not having a vehicle is related to wasting	0,028
Mother's education	Luzingu <i>et al.</i> (2022)	Low maternal education increases the risk of wasting	0,012
	Rahut <i>et al.</i> (2024)	Maternal illiteracy is positively associated with malnutrition	< 0,001
	Zhang <i>et al.</i> (2022)	High father's education reduces the risk of wasting	0,021
Mother's job	Luzingu <i>et al.</i> (2022)	Mothers working in the last 12 months increases the risk of wasting	0,036
	Nguedjo <i>et al.</i> (2024)	Low economic status increases the risk of wasting	0,015
Family characteristics	Vijay <i>et al.</i> (2024)	Having 3-4 children increases the risk of stunting and wasting	< 0,05
	Islam <i>et al.</i> (2024)	High parity is negatively associated with growth	< 0,01
	Luzingu <i>et al.</i> (2022)	Maternal age 35-49 years increases the risk of wasting	0,042
Environmental factors	Rahut <i>et al.</i> (2024)	Dirty cooking fuel increases the risk of wasting	< 0,001
	Islam <i>et al.</i> (2024)	Increased temperature and rainfall are negatively associated with wasting	< 0,01

## DISCUSSION

### 1. Direct Factors

#### A. Food Intake

Food intake is the most fundamental direct factor in wasting. Toddlers need to eat enough food, including energy and protein, while they are growing (Ali et al., 2022; Hall et al., 2020; Mohammed et al., 2019). Research by Zhang et al. (2022) shows that children with insufficient energy and protein intake are at higher risk of wasting compared to children with adequate intake. These results align with research by Ali et al (2022), which found that snacking less than twice daily is significantly associated with malnutrition in children.

Nutritional deficiencies in early life impact later life. Malnutrition in toddlers not only impacts physical growth but also impacts the quality of intelligence and future development. Therefore, the role of nutritious foods is crucial, such as foods containing energy, protein (especially animal protein), vitamins such as vitamin B complex, vitamin C, and vitamin A, and minerals such as calcium, iron, iodine, phosphorus, and zinc.

#### B. Infectious Diseases

Infectious diseases are another direct factor contributing to wasting. Research by Murarkar et al. (2020) in India showed that acute diarrhea was significantly associated with wasting in toddlers. Similar findings were reported by Mulu et al. (2021) in Ethiopia, who found that children who were ill in the past two weeks increased the risk of wasting.

Children in developing countries, especially in the first years of life, frequently suffer from infectious diseases. Infections contribute to deficiencies in energy, protein, and other nutrients by reducing appetite and thus reducing food intake. In fact, malnutrition and infectious diseases often occur simultaneously. Malnutrition can increase the risk of infection, while infection can cause malnutrition, leading to a vicious cycle of infectious malnutrition (Rahut et al., 2024; Wandji Nguedjo et al., 2024). Islam et al (2024), in their study in Pakistan, found that diarrhea prevalence was negatively associated with children's linear growth, with increasing diarrhea incidence associated with decreased growth and an increased risk of wasting. Diarrhea is a disease that is transmitted through water and is generally accompanied by vomiting and diarrhea, which has an impact on children's growth.

### 2. Indirect Factors

#### A. Exclusive Breastfeeding

Exclusive breastfeeding is a protective factor against wasting. Research by Murarkar et al. (2020) showed that exclusive breastfeeding was significantly associated with wasting prevention in rural India. Exclusive breastfeeding is defined as breast milk given to infants from birth for six months without adding or replacing it with other foods or drinks (Indonesian Government Regulation Number 17 of 2023). Conversely, research by Luzingu et al. (2022) found that children who were breastfed and drank water had a higher risk of wasting. This demonstrates the importance of exclusive breastfeeding without additional fluids during the first six months of life. Research in Bangladesh also shows that exclusive breastfeeding until toddlers reach six months of age significantly contributes to improving children's nutritional status (Chowdhury et al., 2020).

#### B. Feeding Parenting Patterns

Feeding parenting patterns play a crucial role in preventing wasting. Research by Zhang et al. (2022) showed that appropriate timing of complementary feeding and separate preparation of complementary foods were significantly associated with a lower risk of malnutrition. Parenting patterns include the ways that mothers or caregivers think and act about feeding their children every day, such as breastfeeding, complementary feeding, and family meals.

Nguedjo et al. (2024), in their study in Cameroon, found that limited maternal food consumption increased the risk of various malnutrition phenotypes, including wasting, in children. This suggests that food availability at the household level and food distribution patterns within the family also influence children's nutritional status.

#### C. Access and Utilization of Health Services

Access to health services and satisfactory sanitation are crucial factors in preventing wasting. Research by Muse et al. (2025) shows that lack of access to latrines is significantly associated with the incidence of acute malnutrition. Poor sanitation increases the risk of infectious diseases, especially diarrhea, which is a direct cause of wasting. Rahut et al. (2024) discovered in a multi-country study in South and Southeast Asia that unsafe drinking water and contaminated cooking fuels elevate the risk of malnutrition in children. These environmental factors are associated with exposure to pathogens and pollution, which can affect children's health and nutritional status. Adequate access to health services, including integrated health posts (*Posyandu*), community health centers (*Puskemas*), and government nutrition programs, can facilitate early detection and treatment of wasting.

### 3. Main Factors

#### A. Poverty and Family Income

Poverty is a major underlying factor in various nutritional problems, including wasting. Muse et al.'s (2025) research identifies low average family income as a determinant of acute malnutrition. Poverty leads to limited access to food, health services, and education, all of which contribute to wasting.

Vijay et al. (2024), in their study in Nepal, found that children from middle- and wealthier households had a 49% and 47% lower risk of wasting compared to children from the poorest households, respectively. These results strengthen evidence that family socioeconomic status significantly influences children's nutritional status. Ali et al. (2022) also found that lacking a family vehicle, an indicator of poverty, was significantly associated with child malnutrition. Parents' ability to purchase nutritious food and access health services depends heavily on family income.

#### B. Mother's Education Level

Maternal education is a factor consistently associated with wasting in various studies. Luzingu et al. (2022) found that low maternal education increases the risk of wasting in children. The higher a person's education, the easier it is to understand information and implement this knowledge into behavior, particularly regarding health and nutrition. Rahut et al. (2024) reported that maternal illiteracy is positively associated with child malnutrition in South and Southeast Asia. Mothers with more education are more likely to listen to nutrition information and use what they learn to care for and feed their children. Zhang et al. (2022) also found that higher paternal education is associated with a lower risk of malnutrition, demonstrating the role of both parents in determining a child's nutritional status. Parental education influences childcare, as higher education helps parents understand the importance of their role in child development. Furthermore, a higher education is thought to enhance nutritional knowledge, enabling them to apply it to their feeding and childcare practices.

#### C. Mother's Employment Status

Maternal employment status has been shown to significantly influence wasting incidence. Luzingu et al. (2022) found that mothers who worked in the 12 months prior to the survey increased their child's risk of wasting. Working mothers may have less time to care for and monitor their child's nutritional intake.

Nguedjo et al. (2024) also reported that low socioeconomic status, often associated with informal employment or unemployment, increases the risk of various malnutrition phenotypes. However, employment status must be viewed in a broader context, as employed mothers with sufficient incomes may be able to provide better nutrition despite limited caregiving time. A study in Pakistan by Siddiqua et al. (2023) found that the proportion of wasted children was higher among employed mothers than among unemployed mothers. This indicates the importance of balancing work and childcare, as well as the need for family and social support for working mothers.

#### D. Family Characteristics

Family characteristics, including the number of family members and birth order, influence the incidence of wasting. Vijay et al. (2024) found that the odds of stunting and wasting were 1.6 times higher in children with 3-4 siblings compared to children with 1-2 siblings. Islam et al. (2024), in their study in Pakistan, found that high maternal parity was negatively associated with children's linear growth and increased the prevalence of wasting. Families, especially those in extreme poverty, find it easier to meet their food needs if they have fewer children to feed. The food available for a large family may be sufficient for a family half that size, but it may not be enough to prevent malnutrition in that large family.

Luzingu et al. (2022) also found that older maternal age, between 35 and 49, increases the risk of wasting in children. Maternal health conditions, high parity, and exhaustion from caring for children may contribute to this. Children growing up in poor families with large numbers of members are most vulnerable to malnutrition, and the youngest children are usually the most affected by food shortages.

#### E. Environmental and Ecological Factors

An often-overlooked environmental factor that has a significant impact is the physical and ecological conditions of the environment. In a geospatial study in South and Southeast Asia, Rahut et al. (2024) found that dirty cooking fuels like firewood and charcoal increase the risk of malnutrition in children. Exposure to indoor air pollution from the combustion of these fuels can affect children's respiratory health and increase the risk of infection. Islam et al. (2024) reported intriguing findings indicating a negative correlation between climate factors like increasing surface temperature and rainfall variability and children's linear growth.



Increasing temperature and erratic rainfall are associated with reduced growth and an increased prevalence of diarrhea, ultimately increasing the risk of wasting. These ecological factors suggest that climate change may pose a new threat to children's nutritional status, particularly in developing countries with limited adaptation to environmental changes.

Household density is also an influential environmental factor. High-density housing increases the risk of infectious disease transmission between family members, which can worsen children's nutritional status. Poor environmental sanitation, limited access to clean water, and open defecation practices, as reported by Mulu et al. (2021), are factors related to wasting.

#### **F. Food Distribution Patterns in the Family**

Food distribution patterns within the family are an important aspect that is often overlooked in nutrition studies. In some societies, food is distributed according to a family hierarchy, with the father or head of the family receiving the primary portion, followed by sons, then daughters, and then young children. This patriarchal pattern can lead to malnutrition in certain groups within the family, particularly women and children. Unequal distribution patterns can result in young children not receiving sufficient nutritious food. As family size increases, food for each child decreases, and many parents fail to realize that very young children require relatively more food than older children. Consequently, young children may not be adequately fed.

Appropriate food distribution among family members is crucial for achieving satisfactory nutrition. Food should be distributed to meet the nutritional needs of everyone in the family. Children, pregnant women, and breastfeeding women should receive a substantial portion of protein-rich food. All family members, based on their individual needs, should receive sufficient energy, protein, and other nutrients each day to meet their needs.

#### **4. Interaction between factors**

It is important to understand that the factors causing wasting do not operate in isolation but interact with each other in complex patterns. UNICEF's (1998) conceptual model explains how these factors are hierarchically related, with primary factors such as poverty and sociopolitical structure influencing primary factors such as education and family income, which in turn influence indirect factors such as access to food and health services, and ultimately impact direct factors such as dietary intake and infectious diseases. For example, poverty can lead to limited access to nutritious food, resulting in inadequate energy and protein intake. Poverty also limits access to sanitation and clean water, increasing the risk of infectious diseases. These two direct factors (inadequate intake and infections) then reinforce each other in a vicious cycle that worsens a child's nutritional status.

Low maternal education, often associated with poverty, affects nutritional knowledge, feeding practices, and access to health services. Low-educated mothers may not understand the importance of exclusive breastfeeding, the appropriate timing of complementary feeding, or how to care for a sick child, all of which contribute to wasting.

Maternal employment status also interacts with other factors. Working mothers with low incomes may lack the time and resources to provide nutritious food and optimal care. Meanwhile, unemployed mothers with low family incomes also face limited access to nutritious food.

#### **5. Implications for Programs and Policies**

Being familiar with the factors causing wasting has important implications for the design of prevention and treatment programs and policies. Approaches that focus solely on one aspect, such as supplementary feeding, without considering other factors, are likely to be ineffective in the long term. Wasting prevention and treatment programs must be designed in a multisectoral manner, involving the health, agriculture, education, and socioeconomic sectors. Supplemental feeding programs should be accompanied by nutrition education for mothers, improvements in environmental sanitation, increased access to clean water, and poverty alleviation programs. Nutrition-specific interventions, such as promoting exclusive breastfeeding, providing timely and high-quality complementary foods, and managing infectious diseases, need to be strengthened. However, we also need to integrate nutrition-sensitive interventions that tackle root causes like poverty, education, and access to basic services.

Routine nutritional monitoring and surveillance at the integrated health post (*Posyandu*) and community health center (*Puskesmas*) levels need to be improved for early detection of wasting cases. An effective referral system from *Posyandu* to *Puskesmas* and hospitals for severe wasting cases must also be strengthened. Empowering health cadres and increasing the capacity of health workers in wasting management are essential components of prevention programs. Strong political commitment and adequate budget allocation for nutrition programs are necessary at the policy level. Policies that support adequate maternity leave for working mothers, access to affordable health and nutrition services, and social security for low-income families can help reduce the risk factors for wasting.



## 6. Limitations of the Study

This literature review has several limitations. First, the articles reviewed mostly originate from developing countries in Africa and Asia, with socioeconomic contexts that may differ from conditions in Indonesia, particularly Bandar Lampung City. Second, the majority of studies employed cross-sectional designs, which are inadequate for elucidating the causal relationship between causal factors and the incidence of wasting. Third, variations in operational definitions and measurement methods of risk factors between studies may affect the comparability of results. Fourth, this review did not conduct a systematic methodological quality assessment of the articles reviewed. Fifth, certain factors, such as food distribution patterns within families and local cultural aspects, have not been extensively studied in the reviewed literature; thus, understanding of these factors remains limited.

## CONCLUSION

Based on the results of the literature review, it can be concluded that wasting in toddlers is caused by a complex interaction between various direct, indirect, and underlying factors. Direct causal factors include inadequate dietary intake, particularly energy and protein, and infectious diseases, particularly diarrhea. These two factors reinforce each other in a vicious cycle that worsens a child's nutritional status.

Indirect factors include exclusive breastfeeding, parenting practices, and access to health services and environmental sanitation. Exclusive breastfeeding during the first six months of life has been shown to be a protective factor against wasting, while inappropriate feeding practices and poor sanitation increase the risk. The main factors underlying wasting are poverty and low family income, low maternal education, maternal employment status, family characteristics such as number of children and parity, food distribution patterns within the family, and environmental and ecological factors, including exposure to pollution and climate change.

Efforts to prevent and address wasting must be designed comprehensively and multisectorally, taking into account all causal factors. Nutrition-specific interventions need to be combined with nutrition-sensitive interventions that address root causes such as poverty, education, and access to basic services. An effective program requires strong political commitment, adequate budget allocation, and intersectoral coordination.

In the context of Bandar Lampung City, with a wasting prevalence of 8.4%, further research using a cohort or case-control design is needed to identify specific risk factors in the region. To understand local cultural aspects that influence parenting and feeding practices for toddlers, qualitative research is also necessary. Regular evaluation of existing nutrition programs is necessary to ensure effectiveness and continuous improvement.

## REFERENCES

1. Ali, M. A., Yifter, H., & Bekele, A. (2022). Determinants of undernutrition among private and public primary school children: A comparative cross-sectional study toward nutritional transition in northwest Ethiopia. *Journal of Nutrition and Metabolism*, 2022, 1-12.
2. Caulfield, L. E., de Onis, M., Blössner, M., & Black, R. E. (2004). Undernutrition as an underlying cause of child deaths associated with diarrhea, pneumonia, malaria, and measles. *The American Journal of Clinical Nutrition*, 80(1), 193-198.
3. Chowdhury, T. R., Chakrabarty, S., Rakib, M., Afrin, S., Saltmarsh, S., & Winn, S. (2020). Factors associated with maternal malnutrition in Bangladesh: A study on 15-49 years old women. *BMC Women's Health*, 20, 1-10.
4. De Onis, M., & Blössner, M. (1997). WHO Global Database on Child Growth and Malnutrition. *WHO*, Geneva.
5. Galler, J. R., Bringas-Vega, M. L., Tang, Q., Rabinowitz, A. G., Musa, K. I., Chai, W. J., ... & Valdés-Sosa, P. A. (2021). Neurodevelopmental effects of childhood malnutrition: A neuroimaging perspective. *NeuroImage*, 231, 117828.
6. Hall, J. A., Seedat, Y. K., & Chikobvu, P. (2020). Prevalence and predictors of wasting among children aged 6-59 months in Limpopo Province, South Africa. *South African Journal of Clinical Nutrition*, 33(4), 93-99.
7. Islam, M., Ahmed, T., Choudhury, N., & Hossain, M. I. (2024). Drivers of stunting and wasting across serial cross-sectional household surveys of children under 2 years of age in Pakistan: Potential contribution of ecological factors. *Maternal & Child Nutrition*, 20(1), e13435.
8. Ministry of Health of the Republic of Indonesia. (2020). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 2 Tahun 2020 tentang Standar Antropometri Anak*. Jakarta: Kemenkes RI.



9. Ministry of Health of the Republic of Indonesia. (2023). *Hasil Survei Status Gizi Indonesia (SSGI) 2022*. Jakarta: Kemenkes RI.
10. Ministry of Health of the Republic of Indonesia. (2023). *Survei Kesehatan Indonesia (SKI) 2023*. Jakarta: Kemenkes RI.
11. Luzingu, J. K., Stroupe, N., Alaofe, H., Jacinto, E., & Taren, D. (2022). Risk factors associated with under-five: Stunting, wasting, and underweight in four provinces of the Democratic Republic of Congo: Analysis of the ASSP project baseline data. *Nutrients*, 14(14), 2931.
12. Mohammed, S. H., Larijani, B., & Esmailzadeh, A. (2019). Concurrent anemia and stunting in young children: Prevalence, dietary and non-dietary associated factors. *Nutrition Journal*, 18(1), 10.
13. Mulu, N., Kahssay, M., Gebremedhin, T., & Desta, K. (2021). Determinants of stunting and wasting in street children in Northwest Ethiopia: A community-based study. *BMC Nutrition*, 7(1), 67.
14. Murarkar, S., Gothankar, J., Doke, P., Pore, P., Lalwani, S., Dhumale, G., ... & Patil, R. (2020). Prevalence and determinants of undernutrition among under-five children residing in urban slums and rural area, Maharashtra, India: A community-based cross-sectional study. *BMC Public Health*, 20(1), 1559.
15. Muse, A. I., Yusuf, H., Guled, A. A., Ahmed, A. A., Abdullahi, A. A., & Roble, A. K. (2025). Determinants of acute malnutrition among 6 to 59 months children in public health facilities of Mogadishu, Somalia. *Journal of Health, Population and Nutrition*, 44(1), 1-12.
16. Nguedjo, M. W., Djiéto-Lordon, C., & Ndomou, M. (2024). The phenotypes of double burden of malnutrition in pairs of mothers and their children aged 0-59 months at a rural district in west region, Cameroon: A cross-sectional study. *BMC Nutrition*, 10(1), 15.
17. Peraturan Pemerintah Republik Indonesia Nomor 17 Tahun 2023 tentang Kesehatan.
18. Rahut, D. B., Debela, B. L., Kassie, G. T., Songsermsawas, T., Demonsthenes, M., & Rahut, R. (2024). Geospatial and environmental determinants of stunting, wasting, and underweight: Empirical evidence from rural South and Southeast Asia. *Food Policy*, 123, 102598.
19. Siddiq, A., Memon, Z. A., Narejo, N., & Talpur, A. A. (2023). Maternal employment and child nutritional status in Pakistan. *Pakistan Journal of Medical Sciences*, 39(2), 456-461.
20. UNICEF. (1998). *The State of the World's Children 1998: Focus on Nutrition*. New York: UNICEF.
21. UNICEF, WHO, The World Bank. (2019). *Levels and Trends in Child Malnutrition: Key Findings of the 2019 Edition*. Geneva: WHO.
22. UNICEF. (2021). *Programming Guidance on the Management of Wasting and Nutritional Oedema (Acute Malnutrition) in Infants under 6 Months of Age*. New York: UNICEF.
23. Vijay, J., Patel, K. K., & Kumar, R. (2024). Malnutrition among under-five children in Nepal: A focus on socioeconomic status and maternal BMI. *Children*, 11(2), 156.
24. Wandji Nguedjo, M., Djiéto-Lordon, C., & Ndomou, M. (2024). Assessment of nutritional status and associated factors among children aged 0-59 months in rural Cameroon. *African Journal of Food, Agriculture, Nutrition and Development*, 24(1), 23654-23672.
25. Zhang, M., Li, X., Wang, L., Yang, Y., & Zhao, L. (2022). Prevalence of malnutrition and associated factors among children aged 6-24 months under poverty alleviation policy in Shanxi province, China: A cross-sectional study. *BMC Public Health*, 22(1), 2217.

**Cite this Article:** Agustine Sesunan, D.S., Angraini, D.I., Pramesona, B.A., Rengganis Wardani, D.W.S., Zuraida, R. (2025). *Factors Causing Wasting in Toddlers: A Literature Review. International Journal of Current Science Research and Review*, 8(11), pp. 5685-5692. DOI: <https://doi.org/10.47191/ijcsrr/V8-i11-25>